The Commonwealth of Massachusetts

DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

August 13, 2004

D.T.E. 03-52

Petition of Fitchburg Gas and Electric Light Company for Approval of its 2003 Integrated Gas Resource Plan for the Forecast Period 2002-03 through 2006-07 pursuant to G.L. c. 164, § 69I et seq.

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Petitioner

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I. INTRODUCTION AND PROCEDURAL HISTORY

On May 9, 2003, pursuant to G.L. c. 164, § 69I, Fitchburg Gas and Electric Light Company ("Fitchburg" or "Company") filed with the Department of Telecommunications and Energy ("Department") a petition for approval of its 2003 Integrated Gas Resource Plan ("Plan") for the forecast period 2002-2003 through 2006-2007. The petition was docketed as D.T.E. 03-52.

Fitchburg is a regulated natural gas distribution utility headquartered in Fitchburg, Massachusetts. The Company serves utility customers in the six communities of Ashby, Fitchburg, Gardner, Lunenburg, Townsend, and Westminster in north central Massachusetts. The Company serves approximately 14,738 natural gas customers, of which 1,179 are GS-2 industrial process customers, 289 are GS-1 commercial heating customers, and 13,270 are residential customers (Exh. FG&E-1, at A-3, A-4, A-5).

Pursuant to notice duly issued, the Department conducted a public hearing and procedural conference at its offices on June 26, 2003. An evidentiary hearing was held at the Department's offices on January 22, 2004.[1] Fitchburg presented three witnesses in support of its Plan: Ann Bulkley, a consultant with Concentric Energy Advisors; Robert Hevert, president of Concentric Energy Advisors; and Richard A. MacInnis, an energy trader for Unitil Service Corp. The evidentiary record consists of the Company filing, 92 responses to information requests, and ten responses to record requests.

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1 On August 29, 2003, the Company was granted permission to delay evidentiary hearings in order to file an updated Plan, which it did on October 31, 2003.

II. ANALYSIS OF THE LONG-RANGE FORECAST

A. Standard of Review

Pursuant to G.L. c. 164, § 69I, the Department is required to ensure "a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost." In accordance with this mandate, the Department reviews the long range forecast of each gas utility to ensure that the forecast accurately projects the gas sendout requirements of the utility's market area. G.L. c. 164, § 69I. A forecast must reflect accurate and complete historical data, and reasonable statistical projection methods. G.L. c. 164, § 69I; 980 C.M.R. § 7.02(9)(b). Such a forecast should provide a sound basis for resource planning decisions. Bay State Gas Company, D.T.E. 02-75, at 2 (2004); The Berkshire Gas Company, D.T.E. 02-17, at 2 (2003); The Berkshire Gas Company, 16 DOMSC 53, at 56 (1987).

In its review of a forecast, the Department determines if a projection method is reasonable based on whether the methodology is: (a) reviewable, that is, contains enough information to allow a full understanding of the forecast methodology; (b) appropriate, that is, technically suitable to the size and nature of the particular gas company; and (c) reliable, that is, provides a measure of confidence that the gas company's assumptions, judgments, and data will forecast what is most likely to occur. D.T.E. 02-75, at 2; D.T.E 02-17, at 2; Haverhill Gas Company, 8 DOMSC 48, at 50-51 (1982). Specifically, the Department examines a gas company's: (1) planning standards, including its weather data; (2) forecast method, including the forecast results; and (3) derivation and results of its design and normal sendout forecasts. See D.T.E. 02-75, at 2-3; D.T.E. 02-17, at 3; see also Boston Gas

Company, D.P.U. 94-109 (Phase I), at 9 (1996). As part of the review of the forecast, the Department also examines the company's scenario analysis, which is used for evaluating the flexibility of the company's planning process, including any cold-snap analysis[2] and sensitivity analysis. D.T.E. 02-75, at 3 and D.T.E. 02-17, at 3; Boston Gas Company, 25 DOMSC 116, at 200 (1992) ("1992 Boston Gas Decision").

B. Previous Sendout Forecast Review

The last review completed for a forecast and supply plan filed by the Company was in Fitchburg Gas and Electric Light Company, D.T.E. 00-42 (2000). In that decision, the Department approved the Company's forecast and supply plan with directions for future filings. Specifically, the Company was directed in its next forecast filing: (1) to collect relevant data and information to appropriately develop its transportation forecast; and (2) to develop class-specific transportation forecasts. Id. at 27. Fitchburg has adequately complied with these directives, as discussed herein.

C. Planning Standards

The first element of the Department's forecast review is an assessment of a company's planning standards in order to determine if they are reviewable, appropriate, and reliable. A company's planning standards are used as a basis for projecting its sendout forecast, which, in turn, is used to ascertain the adequacy and cost of a company's supply plan. The Department's review of a company's planning standards begin with an examination of a company's weather

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2 A cold-snap is a prolonged series of days at or near design conditions. Colonial Gas Company, D.P.U. 93-13, at 66 (1995); 1992 Boston Gas Decision at 217; Commonwealth Gas, 17 DOMSC 71, at 137 (1998).

data and continues with an analysis of how a company arrived at its normal year, design year, and design day[3] standards.

1. Weather Data

a. Description

The Company stated that its weather data is from the Worcester Regional Airport and Bedford Hanscom Field weather databases and is continually updated with the data collected from the two weather stations (Exh. FG&E-1, at 58; RR-DTE-5). The Company used data for the 35-year period from 1968 through 2002 (Exh. FG&E-1, at 59). The model[4] calculates the mean and standard deviations of the data, and then applies a normal distribution to derive heating degree day ("HDD")[5] levels associated with different probabilities of occurrence (Exh. FG&E-1, at 59). The Company converted its weather data using the same model approved in its three previous Integrated Gas Resource Plan ("IRP") filings, D.T.E. 00-42, Fitchburg Gas and Electric Light Company, D.T.E. 98-55 and Fitchburg Gas and Electric Light Company, D.P.U. 94-140 (1996).

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3 The design day represents the coldest day for which the utility plans to provide reliable firm service.

4 The model was developed by Management Applications Consulting and maintained by the Company.

5 HDD is a measure of coldness of the weather experienced, based on the extent to which the daily mean temperature falls below a reference temperature, usually 65 degrees Fahrenheit.

b. Analysis and Findings

In D.T.E. 00-42, at 6, the Department approved the Company's weather database, which contained 35 years of data, and was comparable to other weather databases approved previously by the Department. See Colonial Gas Company, D.P.U. 93-13, at 10; 1992 Boston Gas Decision at 135-136; Colonial Gas Company, 23 DOMSC 351, 363-364 (1991) ("1991 Colonial Gas Decision"). Therefore, the Department concludes that the weather data provides an adequate database from which to develop the Company's planning standards. Accordingly, the Department finds the weather database used by the Company in this filing is reviewable, appropriate, and reliable.

2. Normal Year Standard

a. Description

The Company used a normal year standard of 6,655 HDD[6] to develop its sendout forecast (Exh. FG&E-1, at 59). The normal year standard is the arithmetic average of the HDD for each of the 35 gas years (id.).

b. Analysis and Findings

The use of the arithmetic average of historical degree day data to establish a normal year standard has previously been accepted by the Department. Fitchburg Gas and Electric

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6 HDD measures the coldness of weather experience, however, more recently Massachusetts Local Gas Distribution Companies have used Effective Degree Days, which take into account wind speed in determining the coldness of the weather. Colonial Gas Company, D.P.U. 96-18, at 6 (1996). The Department directs the Company, in its next forecast and supply plan, to convert to and submit weather data using Effective Degree Days. In the alternative, Fitchburg must provide justification as to the reasons for continuing reliance on HDD.

Light Company, D.T.E. 98-55, at 5; Colonial Gas Company, D.P.U. 96-18, at 9; Colonial Gas Company, D.P.U. 93-13, at 10; 1992 Boston Gas Decision at 136; 1991 Colonial Gas Decision at 363-364. Because the Company bases its normal year standard on a historical average of the actual data and its planning standards on the weather database approved in Section II.C.1.b., above, the Department finds the method used by the Company for determining its normal year standard to be reviewable, appropriate, and reliable.

3. Design Year Standard

a. Description

The Company assumed a standard normal distribution of HDD and calculated different scenarios of design years of one in 30, one in 50, and one in 100 years (Exh. FG&E-1, at 59). The Company further analyzed the data and concluded that a design year of 7,283 HDD, representing a probability of occurrence of one in 30, is optimal for the Company (id. at 60, Table 2.41).

b. Analysis and Findings

In its 1986 Gas Generic Order, 14 DOMSC 95, 96-97, 104-105 (1986) ("Gas Generic Order"), the Siting Council notified gas companies that it would place renewed emphasis on design criteria "to ensure that those criteria bear a reasonable relationship to design conditions that are likely to be encountered."

The Department notes that the Company conducted an adequate cost-benefit analysis to compare the benefit of maintaining an adequate supply under different planning standards to the probability-weighted cost of service curtailment. The Department finds that the data used by the Company to estimate the actual costs associated with service curtailment are reliable, and the assumptions underlying the cost-benefit analysis are reasonable. Therefore, the Department finds that the Company's selection of a design year standard of one in 30 years is reviewable, appropriate and reliable for the size and nature of the Company.

4. Design Day Standard

a. Description

As in the development of its design year standard, the Company assumed that weather data is normally distributed, and conducted an analysis of various scenarios (Exh. FG&E-1, at 61). The Company selected a design day standard of 71, representing a probability of occurrence of one in 30 years (id. at 62, Table 2.44).

b. Analysis and Findings

The Department reviews design criteria to ensure that there is a reasonable relationship between forecast and actual conditions. See Gas Generic Order at 97. Specifically, the Department evaluates how and why a company selects particular design weather criteria and the effect of the design standard on the reliability of a company's forecast and the cost of its supply plan.

In developing its design day standard, the Company employed the methodology used in developing its design year standard, approved in Section II.C.3.b, above. Accordingly, the Department finds that the Company's method for obtaining its design day standard of one in 30 years is reviewable, appropriate and reliable.

5. Conclusions on Planning Standards

The Department has found that the Company has used: (1) reviewable, appropriate, and reliable weather data for use in the development of its planning standards; (2) a reviewable, appropriate, and reliable normal year standard; (3) a reviewable, appropriate, and reliable design year standard; and (4) a reviewable, appropriate, and reliable design day standard. Accordingly, the Department finds, that the Company's planning standards are reviewable, appropriate and reliable.

D. Forecasting Methods

1. Fitchburg's Forecasting Model

Fitchburg used regression analysis to forecast normalized annual sales[7] and number of customers for each customer segment (Exh. FGE-1, at 14). To develop the total firm throughput forecast, Fitchburg adjusted the Company's sales forecast by company use, lost and unaccounted for and billing cycles (id. at 14).[8] Subsequent to the development of the total throughput forecast, firm transportation migration scenarios were developed

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7 Total sales volumes include the consumption by the Company's firm sales customers as well as the consumption by the Company's firm transportation customers over the study period (Exh. FGE-1, at 14).

8 The historical percent difference between firm sales and firm throughput was calculated and graphed (Exh. DTE 2-4). A logarithmic relationship was observed and an equation was fit (id.). The Company used the logarithmic equation to forecast the company use and lost and unaccounted for gas percentages (id.). Then, those forecasted percentages were applied to the total company sales forecast to obtain the firm throughput forecast (id.).

(Exh.FGE-1, at 14). For the purposes of developing firm sendout requirements, the projected throughput volumes were reduced by the expected Demand-Side Management ("DSM") savings (Exh. DTE 2-23).[9]

The results of Fitchburg's demand forecast show that the total annual Company firm throughput is expected to increase by approximately 17,500 Dth (or 0.73 percent) over the forecast period (2002-2007) under normal conditions (Exh. FGE-1, at 15).

2. Econometric Sales Forecasting

a. Description

Fitchburg used twenty years of historical data in the regression analyses (1983-2002) (Exh. FGE-1, at 16).[10] The Company stated that there are three types of data used in the forecasts: (1) customer consumption data obtained from Company records; (2) weather data, obtained from the Worcester-Bedford database; and (3) economic/demographic data, acquired from Global Insights, Inc. ("GI") (Exh. FGE-1, at 16-17). Although the Company used data

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9 The Company expects an increase in DSM savings from 4,726 Dth in 2002/03 to 131,332 Dth in 2006/07 (Exh. FGE-1, at A-42).

10 Because the company's most recent experience demonstrated a stable rate of attrition, Fitchburg only used data from the period 1995-2002 in developing its number of residential customer regression equation (Exh. FGE-1, at 26). The entire history data set shows an average annual growth trend of .6 percent that occurred from 1983 through 1990 followed by a sharp decline in customer counts of 1.25 percent on an average annual basis from 1990 through 1995 (id.). The most recent history, from 1995 through 2002, shows a more stable rate of attrition, approximately .23 percent on an annual average basis (id.). The Company is not aware of the precise reason(s) for the sharp decrease in residential customers after 1990 (DTE-RR-3). According to the Company, sales forecast is not affected by the customer accounts because customer accounts were not used in the final forecast (Tr. at 35).

through 2002 in the regression analysis, the explanatory variable data for 2002 were, in fact, forecasts and not actual data (Exh. DTE 2-2). According to the Company, most of the actual data for 2002 were not available at the time the Company filed the revised Plan (RR-DTE-1).[11] Fitchburg claims that using actual instead of forecasted 2002 data did not have had a material effect on the forecast because the year 2002 comprises only one year in the entire database of 1983-2002 and because it is the near year in the forecast period (Tr. at 36). The Company did not perform a backcast to verify the 2002 explanatory variables forecast (RR-DTE-7).

Regarding Fitchburg's modeling strategy, the Company stated that it used a common modeling process to develop the regression equations (Exh. FGE-1, at 21). In general, the pre-estimation model specification process was followed by an iterative process of specification and refinement (id.). Finally, the forecast was generated and an ex post forecast was calculated and used to assess the model robustness (id.).

The Company's residential class forecast indicates that there will be .07 percent decrease in the total sales during the 2003-2007 period (id. at 30). In addition, the Company's forecast of small C&I class, medium C&I class, and large C&I class yields 1.81 percent, 1.22 percent, and 2.35 percent increases in the total sales for each of the classifications over the same period (id. at 30-37,44-50).

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11 The Company filed its initial IRP in May 2003 and filed the revised IRP five months later (RR-DTE-1). According to the Company, only the actual 2002 energy price data were available at the time the Company filed its initial IRP (id.).

Fitchburg asserted that each of the regression equations was evaluated for robustness and explanatory power with R-squared, t-values, and serial autocorrelation (id. at 22-23). The average R-squared was 0.83 for the eight estimated equations (id. at 27-29, 33-35, 40-42, 47-49). As a general rule, the Company uses a t-statistic of 1.73 or more to evaluate the statistical significance of the explanatory variables (Exh. DTE 2-12). The Company used the Durbin-Watson statistic to test for first-order serial autocorrelation (Exh. FGE-1, at 23). The regression equations were corrected for serial autocorrelation using the Prais-Winsten autoregression technique whenever the Durbin-Watson statistics seemed unreasonable (id.). Further, the Company used forecast comparisons with actual normal sales and number of customers data from 1998 to 2002 to evaluate the predictive ability of the forecasts (id. at 30-36, 44-50).

b. Analysis and Findings

The econometric models developed by Fitchburg incorporate sufficient detail to ensure reasonable results for planning purposes. The Company: (1) used data sources with county specific forecasted values of economic and demographic variables; (2) prepared separate gas consumption models for residential, and commercial and industrial groups of customers; (3) generated econometric forecasts in terms of number of customers and total sales; (4) corrected the econometric equations for serial autocorrelation using an appropriate methodology;[12] (5) adjusted the firm sales by company use, lost, and unaccounted for to develop firm sendout requirements; and (6) analyzed the predictive ability of its forecast model.

The Department finds that the Company has sufficiently documented its methodology for the demand forecast. The Department also finds that the Company developed its forecast based on econometric models that are suitable for the size and the nature of the Company. Additionally, the Department notes that the econometric methods employed by the Company are traditionally proven techniques that have been used extensively in the industry by local distribution companies. Further, the Department finds that the forecast load is within an acceptable level of confidence. Therefore, the Department finds that the total forecast developed by Fitchburg is reviewable, appropriate, and reliable.

However, the Department notes that in developing its sales econometric model, Fitchburg used forecast instead of actual explanatory variables for the year 2002. The forecast must reflect accurate and complete historical data. The purpose of forecasting is to project the dependent variables (load and number of customers), not part of the historical period. Moreover, there is a plethora of private and public sources of regional economic and demographic data which are used by other Massachusetts LDCs in their forecasting models. Consequently, the Company will be required to use actual data for the entire historical period

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12 The Company used the Prais-Winsten autoregression technique, a standard technique to address serial autocorrelation. An autoregressive term is added to the regression equation, and the coefficients of the independent variables are reestimated in a iterative fashion until the serial correlation in the residual is removed.

in the next IRP. In addition, the Department directs the Company, in its next IRP, to present an analysis explaining the causes for reduction in the number of residential customers and specifically to explain the sharp decline in residential counts taking place since 1990.

In addition, in its next IRP, the Company must provide, on disk in Microsoft Excel format, all the data used as inputs in the models, including the forecasted explanatory variables. This requirement shall apply to all gas companies in Massachusetts.

3. <u>Transportation Forecasts</u>

a. <u>Description</u>

The Company stated that it used a scenario methodology to forecast transportation volumes because there is insufficient data[13] to estimate regression equations to explain customer switching behavior by customer segment (Exh. FGE-1, at 53). To develop base, high and low case scenarios of firm transportation, the Company reviewed the migration history by customer class (<u>id.</u>).

The base case scenario represents the current migration experience, using the migration data by customer class from December 2002 (<u>id.</u> at 56).[14] According to the Company, this scenario is reasonable because: (1) migration peaked in May 2002, and subsequently declined, and (2) a number of third party suppliers were considering not renewing their contracts with

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13 The Company began offering firm transportation service to its customers in June of 1999 (Exh. FGE-1, at 53).

14 The Company presents that firm transportation volumes, as a percent of total deliveries in December 2002, were as follows: 0 percent for residential; .2 percent for small C&I; 14 percent for medium C&I; and 25 percent for large C&I (Exh. FGE-1, at 56).

customers and thus would require customers to return to the Company's default service once their contracts terminated (Exh. DTE 2-26). The base case scenario forecasts an increase in firm transportation volumes from 188,789 Dth to 202,312 Dth over the forecast period (Exh. FGE-1, at 58).

A high case scenario forecast is based on the higher of either: (1) the average transportation participation from 1999 through 2002, or (2) the average participation over the last twelve months (id. at 57). The high case scenario forecasts an increase in firm transportation volumes from 378,516 Dth to 408,878 Dth over the forecast period (id. at 58). A low case scenario assumes that all transportation customers return to sales service,[15] and consequently there are no transportation volumes (id. at 57).

b. Analysis and Findings

In Fitchburg's last forecast and supply plan, the Department directed the Company to collect relevant data and information to appropriately develop its transportation forecast. D.T.E. 00-42, at 11. The Company used its current experience to develop three scenarios for its firm transportation service, low, base, and high case scenario. The Department finds that, based on the information available to the Company at the time it prepared its current filing,

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15 The Company received notification from third party suppliers that they were phasing out their pursuit of retail customers in the Company's service territory and would not be renewing their supply arrangements with the customers they were serving upon completion of their contracts (Exh. DTE 2-27). In addition, Fitchburg is aware of several marketers who have discontinued sales service in Massachusetts (id.). Further, the Company did not have any information to suggest that this inactivity, or reduced level of activity, would be reversed through the forecast period (id.).

Fitchburg's method for determining its transportation volumes and number of firm customers is reviewable, reliable and appropriate.

III. ANALYSIS OF THE SUPPLY PLAN

A. Standard of Review

The Department is required to ensure "a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost." G.L. c. 164, § 69I. In fulfilling this mandate, the Department reviews a gas company's supply planning process and the two major aspects of every utility's supply plan -- adequacy and cost.[16] D.T.E. 02-75, at 13; D.T.E. 02-17, at 23; 1992 Boston Gas Decision at 201.

The Department reviews a gas company's five-year supply plan to determine whether the plan is adequate to meet projected normal-year, design-year, design-day, and cold-snap firm sendout requirements. The Department's review of reliability, another necessary element of a gas company's supply plan, is included in the Department's consideration of adequacy. D.T.E. 02-75, at 13,14; D.T.E. 02-17, at 24; 1992 Boston Gas Decision at 201, n.87. In order to establish adequacy, a gas company must demonstrate that it has an identified set of resources that meet its projected sendout under a reasonable range of contingencies. If a company cannot establish that it has an identified set of resources which meet sendout requirements under a reasonable set of contingencies, the company must then demonstrate that

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16 G.L. c. 164, § 69I also directs the Department to balance cost considerations with environmental impacts in ensuring that the Commonwealth has a necessary supply of energy. Colonial Gas Company, D.P.U. 96-18, at 31; Commonwealth Gas Company, D.P.U. 92-159, at 53; Colonial Gas Company, D.P.U. 93-13, at 50.

it has an action plan which meets projected sendout in the event that the identified resources will not be available when expected. D.T.E. 02-75, at 14; D.T.E. 02-17, at 24; D.P.U. 93-13, at 50.

In its review of a gas company's supply plan, the Department reviews a company's overall supply planning process. An appropriate supply planning process is essential to the development of an adequate, low-cost, and low environmental impact resource plan. Pursuant to this standard, a gas company must establish that its supply planning process enables it to (1) identify and evaluate a full range of supply options, and (2) compare all options -- including Conservation and Load Management ("C&LM") -- on an equal footing. D.T.E. 02-75, at 14; D.T.E. 02-17, at 24; 1992 Boston Gas Decision at 202.

Finally, the Department reviews whether a gas company's five-year supply plan minimizes cost. A least-cost supply plan is one that minimizes costs subject to trade-offs with adequacy and environmental impact. D.T.E. 02-75, at 14; D.T.E. 02-17, at 24; 1992 Boston Gas Decision at 203. Here, a gas company must establish that application of its supply planning process has resulted in the addition of resource options that contribute to a least-cost plan.

B. Previous Supply Plan Review

In D.T.E. 00-42, at 15-16, the Department approved Fitchburg's supply plan for the years 1999-2000 through 2003-2004. The Department found that Fitchburg had established that the Company had adequate supplies to meet its normal year, design year, design day, and cold-snap forecast sendout requirements throughout the forecast period Id. at 20. In addition, the Department found that Fitchburg developed: (1) appropriate criteria for screening and comparing supply-side resources and demand-side resources, and (2) a mechanism to undertake the comparison of resources on a equal basis. Finally, the Department found that the Company's supply planning process as a whole would lead to the addition of resources that contribute to a least-cost supply plan. Id. at 27.

C. Base Case Supply Plan

In this section, the Department reviews the Company's supply plan and identifies elements that represent potential contingencies affecting the adequacy of supply or which potentially affect the cost of the supply plan. The Department reviews the adequacy of the Company's supply plan, the Company's supply planning process, and the cost of the Company's supply plan.

1. Gas Supplies

The Company indicated that it has the following supply and storage contracts:

Contract	Terms	Type	MDQ	Expiration
Amerada Hess Corporation	Base load daily option	Pipeline	4000/2000*	10/31/2004
Conoco Phillips	Baseload/daily option	Pipeline	4288/2148*	10/31/2004
NJR Energy Service	Monthly nom/daily option	Pipeline	2258	3/31/2004
Emera Energy Service	Base load/swing option	Pipeline	900/184*	3/31/2004
TGP Firm Storage	4807 Daily Swing	Storage	4807	3/31/2008
Dominion Transmission	151 Day Storage	Storage	466	3/31/2004
Duke Energy Field Service	option 750,000 gallons	Peaking	3600	3/31/2004

DOMAC	Daily Call LNG limited to 27,500/yr	Peaking	1800	10/31/2004

*Winter/Summer (Exh. FGE-1, at 71, Table 3.1).

The Company indicates that the one-year contract with Amerada Hess Energy for up to 4000 Dth/day supply in the winter months and up to 2000 Dth/day in the summer ends on October 31, 2004, with no explicit renewal terms (id.). The Company states that the one-year contract with ConocoPhillips for up to 4288 Dth/day supply in the winter months and up to 2148 Dth/day in the summer ends on October 31, 2004, with no explicit renewal terms (id).

The Company indicates that it has a winter contract with Emera Energy Services for up to 1084 Dth/day that ends on March 31, 2004 (id.). This contract allowed the Company to access the Maritimes &Northeast Sable Island gas supplies (id. at 72). Fitchburg states that it signed with NJR Energy Company for a winter 2003-2004 contract, which provides base load supply with first of the month nomination flexibility (id.). The Company states that, each year, it contracts for a supply such as the one provided by the NJR Energy Services contract in order to ensure that the Company's storage facilities do not get drawn down too quickly in the event of a design cold winter (id.). In order to secure this type of supply, the Company issues a request for proposal ("RFP") (id.).

2. Storage Facilities and Service

Fitchburg indicates that it has two storage contracts, one with the Tennessee Gas Pipeline ("TGP"), and a second with Dominion Transmission Corporation (formerly "CNG") (id.). The deliverability under these contracts is 4807 Dth/day and 466 Dth/day respectively (id.). The TGP storage and associated transportation contracts provide for a termination date of March 31, 2008 (id.). The contracts will continue for an additional five-year term unless Fitchburg provides TGP with written notification before April 1, 2007 (id.). The Dominion Transmission Corporation contract expires on March 31, 2004 (id.). The Company indicates that it will continue to contract in the marketplace on a seasonal basis for similar supplies as needed (id.).

3. Local Production

Fitchburg indicated that it operates a liquefied natural gas ("LNG") storage and vaporization facility that is capable of delivering 7,200 Dth/day (id.). The Company has contracted with DOMAC for a four-year LNG supply for distribution system pressure needs during design winter conditions, providing 27,500 Dth/year of LNG supply, callable on a daily basis (Exh. FGE-1, at 70).[17] The Company stated that it owns a propane storage facility that is capable of delivering 10,573 Dth/day of sendout requirements (id.). The compression for the plant was upgraded during the summer of 2003, increasing the vaporization from 7,200 Dth/day (id.).

Fitchburg stated that it contracted for a winter supply of up to 750,000 gallons (approximately 68,000 Dth) of Liquid Propane Gas ("LPG") with Duke Energy Field Services. The Company also stated that is has an LPG storage inventory of 27,637 Dth as of October 22, 2003.

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17 The Department approved the Company's LNG contract with DOMAC in Fitchburg Gas and Electric Light Company, D.T.E. 03-94 (2004).

4. Demand-Side Management

The Company filed its Gas Energy Efficiency Program Plan for the three-year period beginning on July 1, 2000. Fitchburg noted that the plan included several energy efficiency programs, marketing initiatives, budget programs, cost effectiveness analyses, performance incentives and evaluation plans for the Company's proposed DSM activities during the four-year period ending October 31, 2003 (Exh. DTE 2-23, Att. at 1). The Company also filed a Program Status Report and Proposed Program Update to report current changes to programs, discuss proposals for additional programs, provide updated budgets for 2003-2004 and summarize the DSM activities for the past two years (id.).

5. Capacity Resources

The Company indicates that it has contracted with Tennessee for transportation services under rate schedule FT-A, for long haul transportation, and rate schedule FS, for storage service (Exh. FGE-1, at 73). The Company's capacity contracts expire between the years 2006 and 2008, with the majority expiring in 2008 (id at 74, Table 3.2).

D. Adequacy of the Supply Plan

In reviewing the adequacy of a gas company's five-year supply plan, the Department first examines whether the Company's base-case resource plan is adequate to meet its projected normal-year, design-year, design-day, and cold-snap firm sendout requirements and, if so, whether the Company's plan is adequate to meet its sendout requirements if certain supplies become unavailable. D.T.E. 02-75, at 17; D.T.E. 02-17, at 28; 1987 Berkshire Gas Decision at 76. If the supply plan is not adequate under the base-case resource plan, or not adequate under the contingency of existing or new supplies becoming available, then the Company must establish that it has an action plan which will ensure that supplies will be obtained to meet its projected firm sendout requirements. D.T.E. 02-75, at 17,18; D.T.E. 02-17, at 28; 1987 Berkshire Gas Decision at 76.

1. Normal and Design Year Adequacy

a. Description

The Company's Tables 3.4 and 3.5[18] outline the adequacy of the portfolio to meet normal and design year conditions (Exh. FGE-1, at 88-83). Fitchburg indicated that it plans to meet its normal and design heating season needs through a combination of firm gas suppliers, underground storage facilities, peaking, local production facilities (propane and LNG), and interstate pipeline transportation services, as noted in Section III.C, above. The tables also reflect the energy savings expected from FG&E's most recent energy efficiency programs (id. at 80).

b. Analysis and Findings

As noted previously, the Department has found Fitchburg's normal, design year, design day and cold-snap forecast to be reviewable, reliable, and appropriate. Based on its sendout and supply tables, the Company has demonstrated that it has adequate supplies to meet its forecast sendout requirements under normal, design, and cold-snap conditions throughout the

18 These tables are based upon tables G-22-N and G-22-D established by the EFSC in Administrative Bulletin 86-1 (May 1986).

forecast period. Accordingly, the Department finds that Fitchburg has established that the Company has adequate supplies to meet its normal year, design year, design day, and cold- snap forecast sendout requirements throughout the forecast period.

2. Design Day Adequacy

a. Description

The Company explains that it has adequate capacity to serve the Design Day requirements (Exh. FGE-1, at 85, Table 3.6).[19] Fitchburg plans to meet its design day needs through existing firm pipeline supplies, underground storage, spot and peaking supply resources (i.e., LNG and propane injections) (id. at 85-86, Table 3.6). Although both of the Company's peak shaving plants will be used to meet design weather demand, for planning purposes the Company notes that it has enough capacity to handle the design day scenario even with only partial availability of either of the peak shaving plants (id. at 86). Prior to each winter heating season, FG&E matches its firm load obligations with firm supply arrangements in order to ensure delivery of supply during peak days (id. at 85-86).

b. Analysis and Findings

Fitchburg presented supply plans for meeting its forecast design day sendout requirements throughout the forecast period. As noted previously, the Department found the Company's design day forecast to be reviewable, appropriate, and reliable. Based on this finding and the sendout and supply tables, the Department finds that Fitchburg has

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[19] The Company has renamed Table G-23 as Table 3.6.

demonstrated that it has adequate supplies and facilities to meet forecast sendout requirements under the design day conditions throughout the forecast period.

3. Cold-Snap Adequacy

a. Description

The Company performed an analysis to establish the ability of its supplies to meet sendout requirements over ten consecutive extremely cold days (Exh. FGE-1, at 84). The analysis assumed the cold snap would occur during the last ten days of an otherwise normal January since, in the context of a cold snap, the last ten days of January would pose the greatest challenge to the Company's supply system (id.). During the cold snap, a mixture of LNG and LPG supplies would be used to meet the peaking supply requirement (id.). The Company determined that its gas supply portfolio would be capable of meeting sendout requirements for a ten-day end-of-the-month cold snap with a reserve margin of approximately twenty-five percent (id.).

b. Analysis and Findings

The Company provided tables and analysis similar to those presented in its design year and design day plans. These tables indicate that Fitchburg has adequate supplies to meet its firm sendout requirements during a prolonged cold snap. Therefore, the Department finds that Fitchburg has adequate supplies to meet its firm sendout requirements during a cold snap.

4. Conclusions on the Adequacy of the Supply Plan

As noted previously, the Department has found Fitchburg's normal, design year and design day forecast to be reviewable, reliable, and appropriate. Based on Fitchburg's sendout and supply tables, the Department finds that the Company has established that its normal year and design year supply plans are adequate to meet the Company's forecast sendout requirements throughout the forecast period. The Department also finds that the Company has established that it has adequate supplies to meet the Company's design sendout requirements for the forecast period.

Accordingly, the Department finds that Fitchburg has established that it has adequate resources to meet its firm sendout requirements throughout the forecast period.

E. Supply Planning Process

1. Standard of Review

The Department has determined that a supply planning process is critical in enabling a utility company to formulate a resource plan that achieves an adequate, least-cost and low environmental impact supply for its customers. D.T.E. 02-75, at 21; D.T.E. 02-17, at 33; Boston Gas Company, 19 DOMSC 332, 388 (1990) ("1990 Boston Gas Decision"). The Department has noted that an appropriate supply planning process provides a gas company with an organized method of analyzing options, making decisions, and re-evaluating decisions in light of changed circumstances. D.T.E. 02-75, at 21; D.T.E. 02-17, at 33; 1990 Boston Gas Decision at 388. For the Department to determine that a gas company's supply planning process is appropriate, the process must be fully documented. D.T.E. 02-75, at 21; D.T.E. 02-17, at 33; 1992 Boston Gas Decision at 223.

The Department's review of a gas company's process for identifying and evaluating resources focuses on whether the company: (1) has a process for compiling a comprehensive array of resource options -- including pipeline supplies, supplemental supplies, DSM, and other resources; (2) has established appropriate criteria for screening and comparing resources within a particular supply category; (3) has a mechanism in place for comparing all resources, including DSM, on an equal basis, i.e., across resource categories; and (4) has a process that as a whole enables the company to achieve an adequate, least-cost, and low environmental impact supply plan. D.T.E. 02-75, at 22; D.T.E. 02-17, at 34; 1990 Boston Gas Decision at 54-55.

As set forth in Section III.A, above, the Department reviews a gas company's five-year supply plan to determine whether it minimizes cost, subject to trade-offs with adequacy and environmental impact. D.T.E. 02-75, at 22; D.T.E. 02-17, at 34; 1987 Boston Gas Decision at 214. A gas company must establish that the application of its supply planning process, including adequate consideration of DSM and consideration of all resource options on an equal basis, has resulted in the addition of resource options that contribute to a least-cost supply plan. D.T.E. 02-75, at 22; D.T.E. 02-17, at 34; Berkshire Gas Company, 14 DOMSC 107, 115 (1986). As part of this review, the Department requires gas companies to show, at a minimum, that they have completed comprehensive cost studies comparing the costs of a reasonable range of practical supply alternatives prior to selection of major new resources for their supply plans. D.T.E. 02-75, at 22-23; D.T.E. 02-17, at 34,35; 1986 Gas Generic Order at 100-102.

2. Identification and Evaluation of Resource Options

Previously, the Department has endorsed local distribution company acquisition processes that involved the solicitation of competitive bids from alternative suppliers. Fall River Gas Company, D.T.E. 99-26, at 30 (2000); Colonial Gas Company, D.T.E. 98-90, at 35;

Holyoke Gas and Electric Department, D.P.U. 93-191, at 30 (1996). In the current proceeding, the Department finds that the RFP process used by Fitchburg to identify alternative suppliers is appropriate. Fitchburg, through its Gas Resource Planning Guidelines, applies price and non-price criteria to determine which options to pursue, and considers both short-term and long-term options (Exh. FGE-1, at 63-69). Accordingly, the Department finds that Fitchburg has formulated an appropriate process for identifying a comprehensive array of supply options, and has developed appropriate criteria for screening and comparing supply resources.

3. Consideration of All Resources on an Equal Basis

a. Demand-Side Management

Fitchburg filed its Gas Energy Efficiency Program Proposal for the period November 1, 2000 through October 31, 2003 in D.T.E. 98-49. The Company's plan provided DSM programs to its residential and C&I customers and established a process to identify and evaluate the cost-effectiveness of its DSM programs. The cost-effectiveness of the DSM programs is determined based on the costs of program implementation and existing/projected average delivered gas prices. The DSM resources are then base loaded into the resource mix and used to make supply side resource decisions (id.). The Department approved the DSM settlement agreement on September 13, 2000. On March 18, 2003, the Company filed its most recent Energy Efficiency Program "Status Report and Proposed Program Update" with the Department. That filing was approved on July 3, 2003, in D.T.E. 98-49 (Exh. FGE-1, at 66).

b. Analysis and Finding

The Department has held that, in order for a gas company's planning process to minimize cost, that process must adequately consider alternative resource additions, including DSM options, on an equal basis. Colonial Gas Company, D.P.U. 93-13, at 83; 1992 Boston Gas Decision at 233. The record shows that Fitchburg has formulated an appropriate process for identifying a comprehensive array of DSM options and has developed appropriate criteria for comparing DSM resources on an equal basis (Exh. FGE-1, at 66). Accordingly, the Department finds that Fitchburg has incorporated both supply-side and demand-side options in its resource mix and has compared all resources, including DSM, on an equal basis.

4. Conclusions on the Supply Planning Process

The Department finds that Fitchburg has established that its normal year, design year and design day supply plans are adequate to meet the Company's forecast sendout requirements throughout the forecast period. The Department has also found that Fitchburg has: (1) formulated an appropriate process to identify a comprehensive array of supply options, and developed appropriate criteria for screening and comparing supply resources; (2) formulated an appropriate process for identifying a comprehensive array of DSM options, and developed appropriate criteria for screening and comparing DSM resources; and (3) incorporated both supply-side and demand-side options in its resource mix, and compared all resources, including DSM, on an equal basis. Finally, the Department finds that Fitchburg has developed an appropriate supply planning process.

5. Conclusions on the Supply Plan

The Department has found that Fitchburg has established that its normal year, design year, design day and cold-snap supply plans are adequate to meet the Company's forecast sendout requirements throughout the forecast period. In addition, the Department has found that Fitchburg has developed: (1) appropriate criteria for screening and comparing supply-side resources and demand-side resources, and (2) a mechanism to undertake the comparison of resources on an equal basis. Finally, the Department has found that the Company's supply planning process as a whole may lead to the addition of resources that contribute to a least-cost supply plan. Accordingly, the Department approves the Company's supply plan for the years 2002 through 2007.

IV. ORDER

Accordingly, after due notice, hearing and consideration, it is

ORDERED: That Fitchburg Gas and Electric Light Company's petition for approval of its long-range forecast and supply plan is APPROVED; and it is

FURTHER ORDERED: That Fitchburg Gas and Electric Light Company comply with all the directives contained herein prior to filing its next long-range forecast and supply plan; and it is

FURTHER ORDERED: That Fitchburg Gas and Electric Light Company shall file its next long-range forecast and supply plan with the Department by June 30, 2006.

By Order of the Department

Paul G. Afonso, Chairman

W. Robert Keating, Commissioner

Eugene J. Sullivan, Jr., Commissioner

Deirdre K. Manning, Commissioner

A True Copy
Attest:

Mary L. Cottrell,
Secretary

Appeal as to matters of law from any final decision, order or ruling of the Commission may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the Order of the Commission be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Secretary of the Commission within twenty days after the date of service of the decision, order or ruling of the Commission, or within such further time as the Commission may allow upon request filed prior to the expiration of twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the Clerk of said Court. (Sec. 5, Chapter 25, G.L. Ter. Ed., as most recently amended by Chapter 485 of the Acts of 1971).